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# Monitoring Nutanix

Nutanix: Base Pack PowerPack version 102

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# Chapter 1

## Introduction

### Overview

This manual describes how to monitor Nutanix systems and their components in SL1 using the *Nutanix Base Pack PowerPack*.

The following sections provide an overview of Nutanix and the *Nutanix Base Pack PowerPack*:

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### What is Nutanix?

The Nutanix Virtual Computing Platform converges server and storage resources into an easy-to-deploy integrated appliance. Data center capacity can be easily expanded one node at a time, delivering linear and predictable scale-out with pay-as-you-grow flexibility.

Nutanix delivers "invisible" infrastructure for next generation enterprise computing by natively converging compute, storage, and virtualization into a turnkey hyper-converged solution.

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## What Does the Nutanix Base Pack PowerPack Monitor?

The *Nutanix Base Pack PowerPack* includes Dynamic Applications that can monitor performance metrics and collect configuration data for all Nutanix devices.

In addition to Dynamic Applications, the PowerPack includes the following features:

- Event Policies and corresponding alerts that are triggered when Nutanix component devices meet certain status criteria
- Device Classes for each of the Nutanix devices monitored
- A sample Credential for discovering Nutanix devices
- Dashboards that display information about Nutanix instances and component devices
- A Run Book Action and an Automation policy to assign the proper device class to the Nutanix root device

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## Installing the Nutanix PowerPack

Before completing the steps in this manual, you must import and install the latest version of the *Nutanix Base Pack PowerPack*.

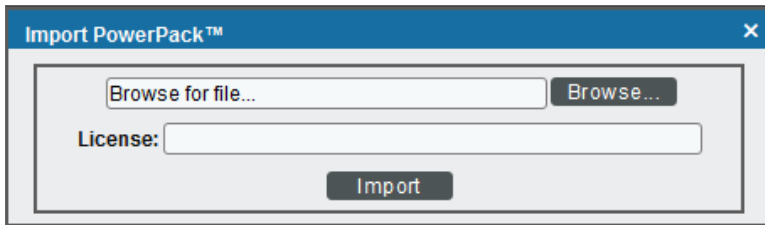
**NOTE:** If you are upgrading from an earlier version of the PowerPack, see the [Release Notes](#) for the version you are installing for upgrade instructions.

**TIP:** By default, installing a new version of a PowerPack overwrites all content in that PowerPack that has already been installed on the target system. You can use the **Enable Selective PowerPack Field Protection** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. (For more information, see the **System Administration** manual.)

To download and install a PowerPack:

1. Download the PowerPack from the [ScienceLogic Customer Portal](#).
2. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
3. In the **PowerPack Manager** page, click the **[Actions]** button, then select *Import PowerPack*.

4. The **Import PowerPack** dialog box appears:



5. Click the **[Browse]** button and navigate to the PowerPack file.
6. When the **PowerPack Installer** modal page appears, click the **[Install]** button to install the PowerPack.

**NOTE:** If you exit the **PowerPack Installer** modal page without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPack Manager** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal page. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

## Configuring Nutanix Monitoring

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### Overview

The following sections describe how to configure and discover your Nutanix system for monitoring by SL1 using the *Nutanix Base Pack PowerPack*:

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### Configuring the Nutanix Credentials

To use the Dynamic Applications in the *Nutanix Base Pack PowerPack*, you must first configure the credential in SL1. This credential allows SL1 to communicate with the Nutanix API. The PowerPack includes the "Nutanix API | Example" credential that you can use as a template.

To configure the Nutanix credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).

2. Locate the **Nutanix API | Example** credential and click its wrench icon (🔧). The **Credential Editor** modal page appears:

The screenshot shows a 'Credential Editor' window with the following fields and values:

- Credential Name:** Nutanix API | Example
- Hostname/IP:** %D
- Port:** 9440
- Timeout(ms):** 20000
- Username:** <USERNAME>
- Password:** .....

3. Enter values in the following fields:
  - **Credential Name.** Type a new name for your Nutanix credential.
  - **Hostname/IP.** Type %D.
  - **Username.** Type the username that SL1 will use to connect to the Nutanix system.
  - **Password.** Type the password for the username you entered.

**NOTE:** You can use the default values for the remaining fields.

4. Click the **[Save As]** button, and then click **[OK]**.

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## Discovering Nutanix Systems

To create and run a discovery session that will discover your Nutanix system, perform the following steps:

1. Go to the **Discovery Control Panel** page (System > Manage > Discovery).

- Click the **[Create]** button to create a new discovery session. The **Discovery Session Editor** window appears:

The screenshot shows the 'Discovery Session Editor | Editing Session [3]' window. It is divided into several sections:

- Identification Information:** Name field contains 'Nutanix Discovery'. Description field is empty.
- IP and Credentials:**
  - IP Address/Hostname Discovery List:** Text field contains '10.128.80.56'. Below it are 'Upload File' and 'Browse...' buttons.
  - SNMP Credentials:** A list box with 'SNMP Public V2' selected. Other items include Dell EMC Isilon, EM7 Default V2/V3, IPSLA, NetApp 8.3/9.3, and Nutanix API.
  - Other Credentials:** A list box with 'Nutanix API | Example' selected. Other items include Citrix XenServer, EMC SMI-S, and Local API.
- Detection and Scanning:**
  - Initial Scan Level:** [ System Default (recommended) ]
  - Scan Throttle:** [ System Default (recommended) ]
  - Port Scan All IPs:** [ System Default (recommended) ]
  - Port Scan Timeout:** [ System Default (recommended) ]
  - Detection Method & Port:** A list box with 'Default Method' selected. Other items include UDP: 161 SNMP, TCP: 1-15 (various protocols).
  - Interface Inventory Timeout (ms):** 600000
  - Maximum Allowed Interfaces:** 10000
  - Bypass Interface Inventory:**
- Basic Settings:**
  - Discover Non-SNMP:**
  - Model Devices:**
  - DHCP:**
  - Device Model Cache TTL (h):** 2
  - Collection Server PID:** 1
  - Organization:** [ Nutanix Guardians Organization ]
  - Add Devices to Device Group(s):** A list box with 'None Servers' selected.
  - Apply Device Template:** [ Choose a Template ]

At the bottom, there are 'Save' and 'Save As' buttons, and a 'Log All' checkbox which is checked.

- Enter values in the following fields:
  - IP Address Discovery List.** Type the IP addresses for the Nutanix systems you want to discover.
  - SNMP Credentials.** Select *SNMP Public V2* if applicable.
  - Other Credentials.** Select the credential that you configured in the previous section.
  - Discover Non-SNMP.** If you are not using an SNMP credential, ensure that this checkbox is selected.
  - Organization.** Select your organization.
- You can enter values in the other fields on this page, but are not required to and can simply accept the default values. For more information about the other fields on this page, see the **Discovery & Credentials** manual.
- Click the **[Save]** button and then close the **Discovery Session Editor** window.
- The discovery session you created will appear at the top of the **Discovery Control Panel** page. Click its lightning-bolt icon (⚡) to run the discovery session.
- The **Discovery Session** window will be displayed.
- When the Nutanix system is discovered, click its device icon (🖨️) to view the **Device Properties** page for the Nutanix system.



9. After the Nutanix system is discovered, the child components and devices associated with that system will also appear in the **Device Manager** page.

**NOTE:** It can take up to 30 minutes for the Dynamic Applications and device class to align.

## Verifying Discovery and Dynamic Application Alignment

To verify that SL 1 has automatically aligned the correct Dynamic Applications during discovery:

1. From the **Device Properties** page for the Nutanix system, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
2. The "Nutanix: \*Discovery" Dynamic Application should be displayed in the list of Dynamic Applications aligned to the Nutanix system:

Close	Properties	Thresholds	Collections	Monitors	Schedule	Logs	Toolbox	Interfaces	Relationships	Tickets	Redirects	Notes	Attributes
Device Name	10.128.80.56	Managed Type	Physical Device										
IP Address / ID	10.128.80.56   528	Category	Pingable										
Class	Nutanix	Sub-Class	Management Device										
Organization	System	Uptime	0 days, 00:00:00										
Collection Mode	Active	Collection Time	2018-07-26 13:16:00										
Description		Group / Collector	CUG   guardians-39										
Device Hostname													


Dynamic Application™ Collections							Expand	Actions	Reset	Guide
	Dynamic Application	ID	Poll Frequency	Type	Credential					
+ Nutanix: *Discovery		1525	2 mins	Snippet Configuration	Nutanix API Guardians					

[Select Action] Go

Save

## Viewing Nutanix Component Devices

In addition to the **Device Manager** page (Registry > Devices > Device Manager), you can view the Nutanix system and all associated component devices in the following places in the user interface:

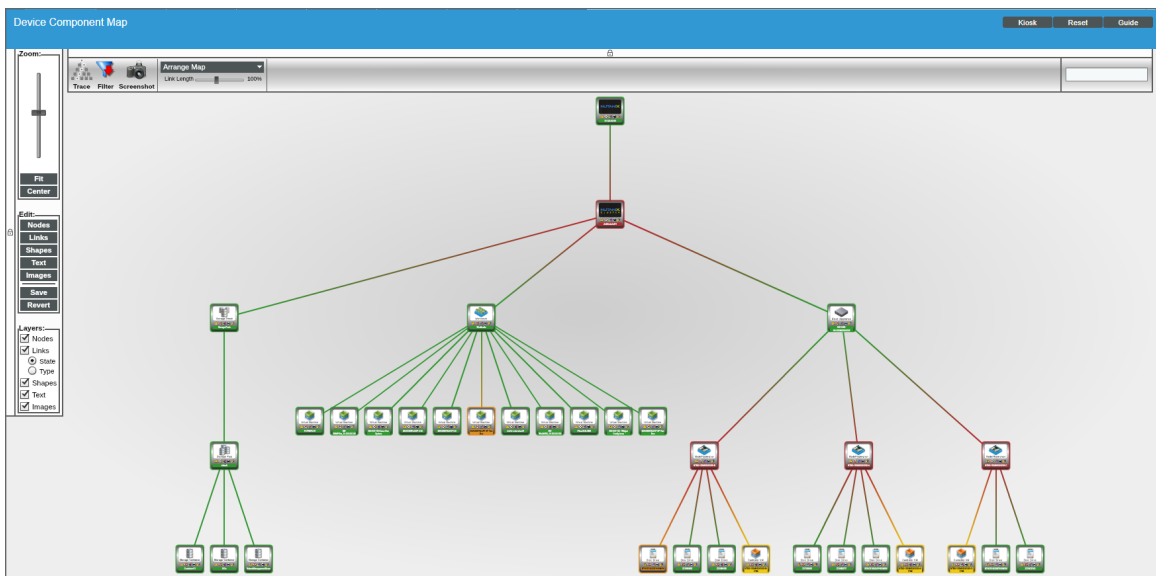
- The **Device View** modal page (click the bar-graph icon  for a device, then click the **Topology** tab) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the devices listed reloads the page to make the selected device the primary device:



- The **Device Components** page (Registry > Devices > Device Components) displays a list of all root devices and component devices discovered by SL1 in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices. To view the component devices associated with a Nutanix system, find the Nutanix device and click its plus icon (+):

Device Name	IP Address	Device Category	Device Class / Sub-class	DID	Organization	Current State	Collection Group	Collection State
10.128.80.56	10.128.80.56	Pingable	Nutanix   Management Device	528	System	Healthy	CUG	Active
dc2hwibcd81	--	Cluster	Nutanix   Cluster	529	System	Critical	CUG	Active
NX-1065-G4-15SM5250085	--	Appliance	Nutanix   Block Appliance	546	System	Healthy	CUG	Active
Storage Pools	--	Group	Nutanix   Virtual Storage	530	System	Healthy	CUG	Active
Workloads	--	Group	Nutanix   Workload Group	531	System	Healthy	CUG	Active
BD-AIO-112 - Widget Config Issue	--	Workloads	Nutanix   Workload VM	545	System	Healthy	CUG	Active
BD-AIO-113 Demo-Dev System	--	Workloads	Nutanix   Workload VM	538	System	Healthy	CUG	Active
BD-SNMPsim_10.128.82.128	--	Workloads	Nutanix   Workload VM	537	System	Healthy	CUG	Active
BD-Win2k8R2_10.128.82.192	--	Workloads	Nutanix   Workload VM	543	System	Healthy	CUG	Active
BDAGENTLSAP 6.42	--	Workloads	Nutanix   Workload VM	539	System	Healthy	CUG	Active
BDAGENTLSAP SP Test Box	--	Workloads	Nutanix   Workload VM	541	System	Major	CUG	Unavailable
BDAGENTLSAP SP Test Box	--	Workloads	Nutanix   Workload VM	561	System	Healthy	CUG	Active
BDAGENTLSAP-6.5	--	Workloads	Nutanix   Workload VM	540	System	Healthy	CUG	Active
dc2-b-nrt-ubun01	--	Workloads	Nutanix   Workload VM	542	System	Healthy	CUG	Active
PowerSCILORD	--	Workloads	Nutanix   Workload VM	544	System	Healthy	CUG	Active
TCPRELAY	--	Workloads	Nutanix   Workload VM	536	System	Healthy	CUG	Active

- The **Component Map** page (Views > Device Maps > Components) allows you to view devices by root node and view the relationships between root nodes, parent components, and child components in a map. This makes it easy to visualize and manage root nodes and their components. SL1 automatically updates the **Component Map** as new component devices are discovered. The platform also updates each map with the latest status and event information. To view the map for a Nutanix system, go to the **Component Map** page and select the map from the list in the left NavBar. To learn more about the **Component Map** page, see the **Views** manual.



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# Chapter

# 3

## Nutanix Dashboards

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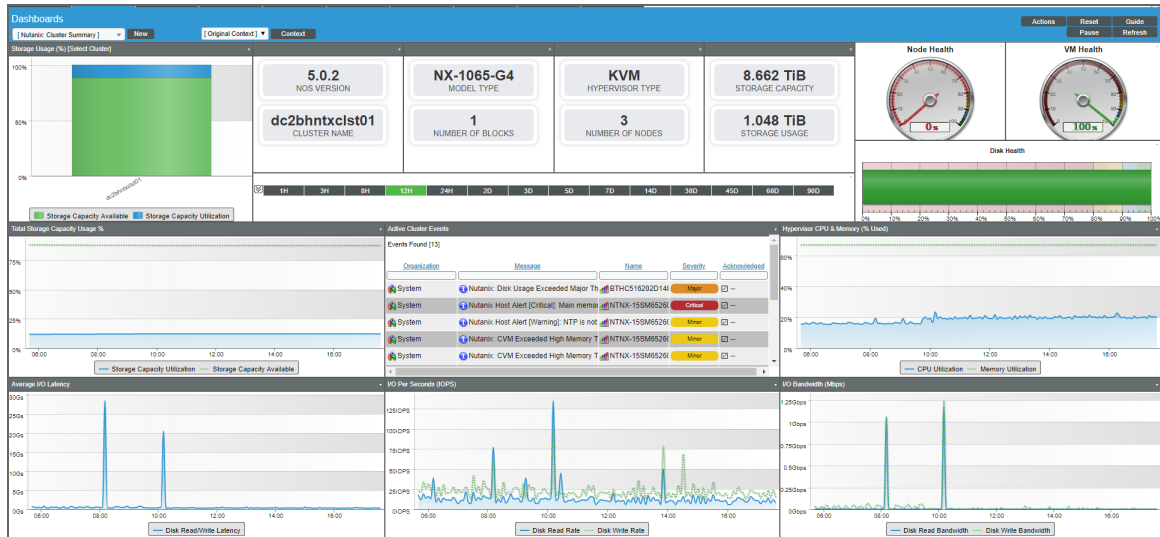
### Overview

The following sections describe the two built-in dashboards and the device dashboards that are included in the *Nutanix: Base Pack PowerPack*:

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# Nutanix: Cluster Summary

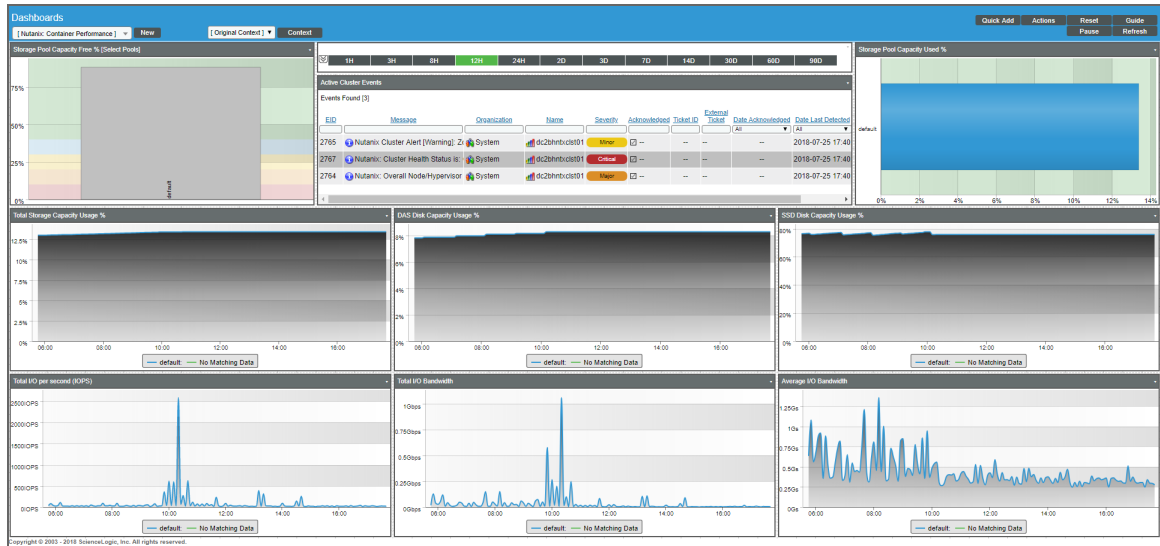
The "Nutanix: Cluster Summary" dashboard displays the following information:



- A widget that displays the available storage capacity and storage capacity utilization. You must select one of the clusters (bars) in this widget to display information about that cluster in the remaining widgets.
- Informational widgets that include:
  - NOS Version and Cluster Name
  - Model Type and Number of Blocks
  - Hypervisor Type and Number of Nodes
  - Storage Capacity and Storage Usage
- Gauges for Node Health and VM Health, and a bar representing Disk Health
- Total storage capacity usage over a period of time
- A list of events associated with the cluster
- Hypervisor CPU and memory used over a period of time
- Average I/O latency over a period of time
- I/O per second over a period of time
- I/O bandwidth over a period of time

# Nutanix: Container Performance

The "Nutanix: Container Performance" dashboard displays the following information:



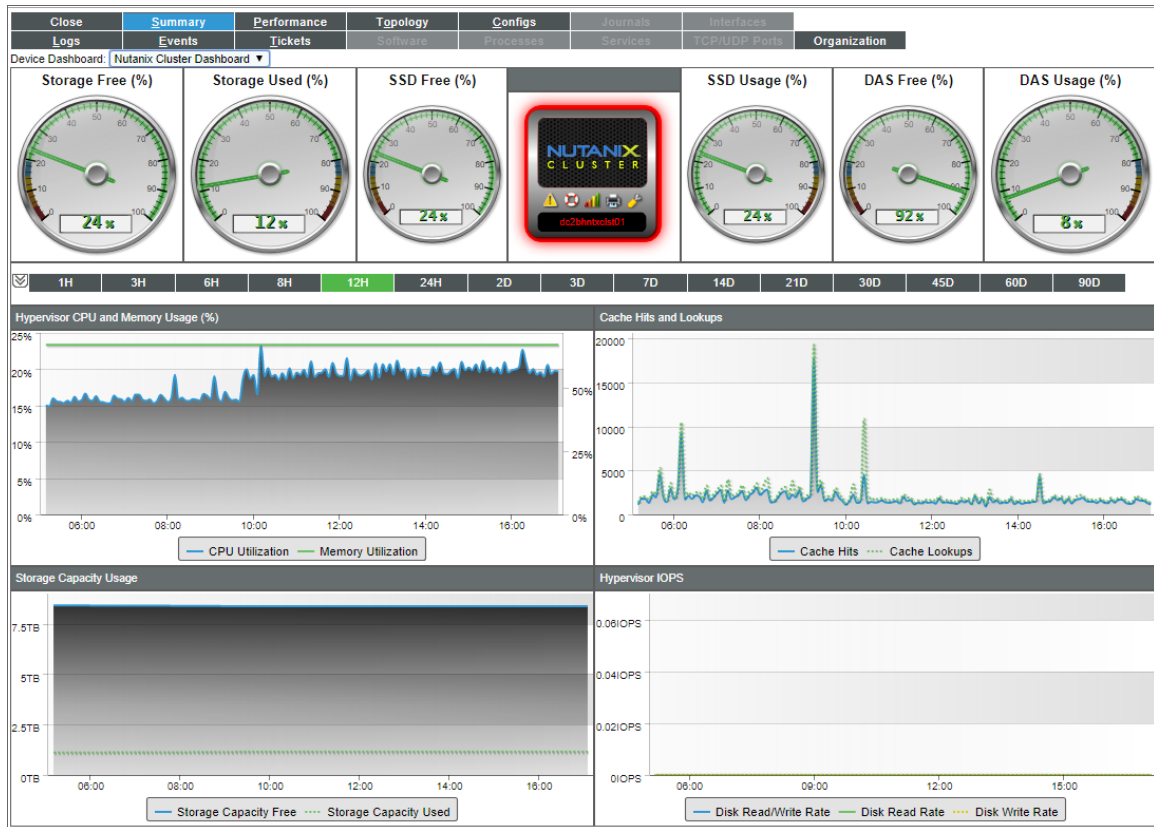
- A widget that displays the available storage pool capacity. You must select one of the pools (bars) in this widget to display information about that pool in the remaining widgets.
- A list of events associated with the storage pool
- A bar graph depicting storage pool capacity used
- Total storage capacity usage over a period of time
- DAS disk capacity usage over a period of time
- SSD disk capacity usage over a period of time
- Total I/O per second over a period of time
- Total I/O bandwidth over a period of time
- Average I/O bandwidth over a period of time

# Device Dashboards

The *Nutanix: Base Pack PowerPack* includes device dashboards that provide summary information for Nutanix devices.

## Nutanix Cluster Dashboard

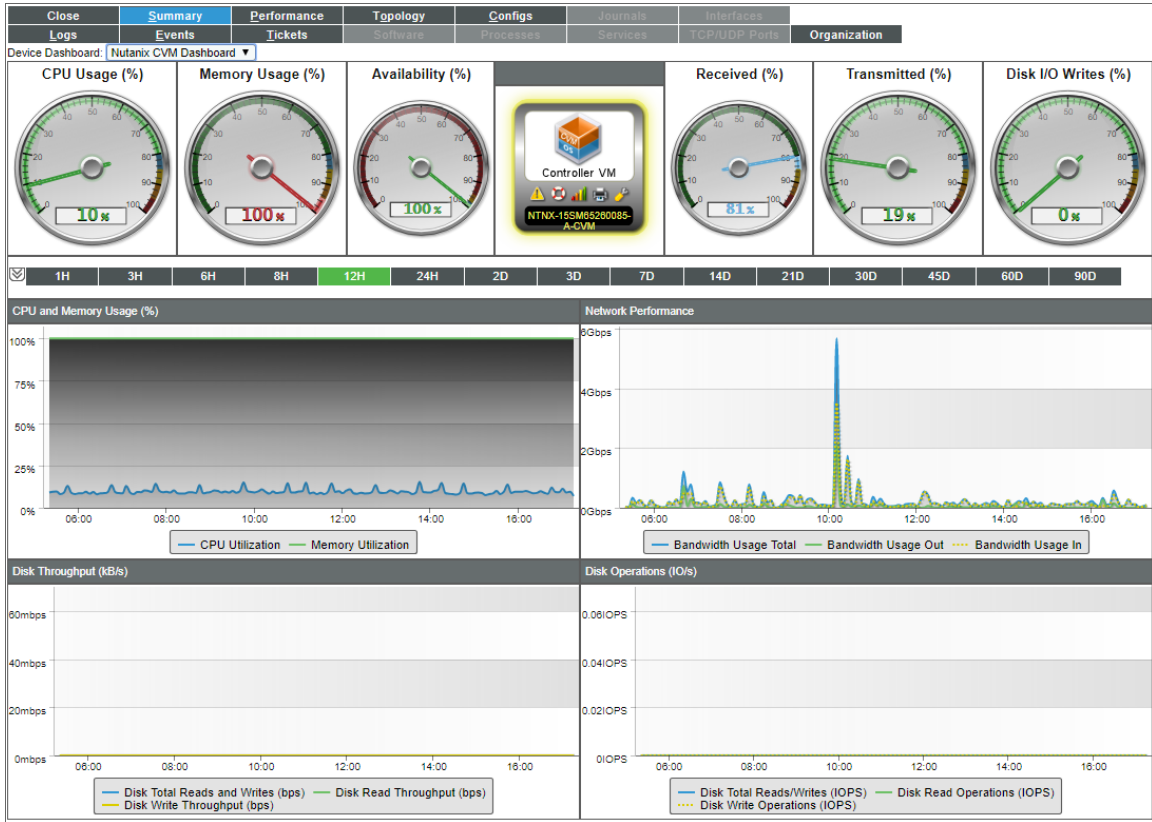
The "Nutanix Cluster" device dashboard displays the following information:



- Hypervisor CPU and memory usage over a specified period of time
- Storage capacity usage over a specified period of time
- Cache hit ratio over a specified period of time
- Hypervisor IOPs over a period of time
- Percentage of free and used storage, SSD, and DAS

# Nutanix CVM Dashboard

The "Nutanix CVM" device dashboard displays the following information:



- A number of gauges that display the following:
  - CPU Usage
  - Memory Usage
  - Availability
  - Received and Transmitted data
  - Disk I/O Wires
- CPU and Memory usage over a period of time
- Network performance over a period of time
- Disk throughput over a period of time
- Disk operations over a period of time



# Nutanix Hard Disk Dashboard

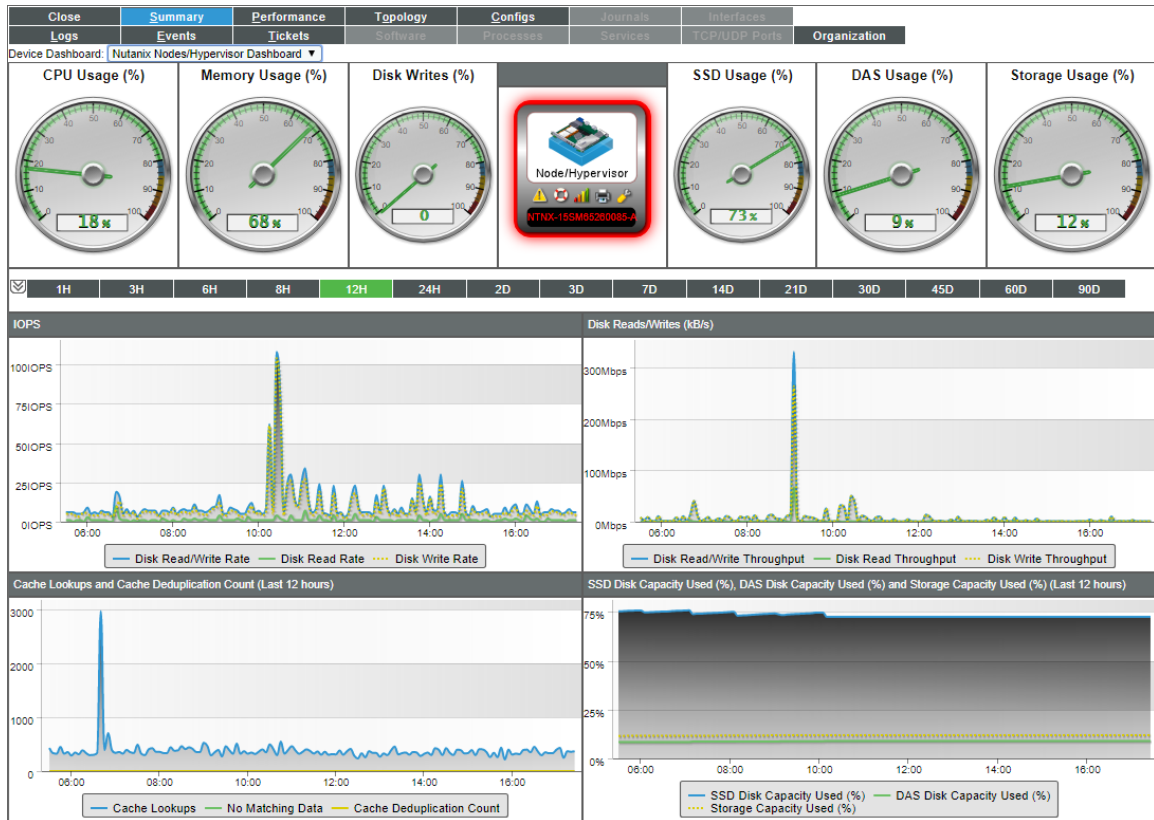
The "Nutanix Hard Disk" device dashboard displays the following information:



- A number of gauges that display the following:
  - Disk Capacity Usage
  - Disk I/O Writes
  - Disk Reads
  - Disk Writes
- Disk bandwidth over a period of time
- Disk IO/s over a period of time
- Disk percent I/O over a period of time
- Disk I/O latency over a period of time

# Nutanix Nodes/Hypervisor Dashboard

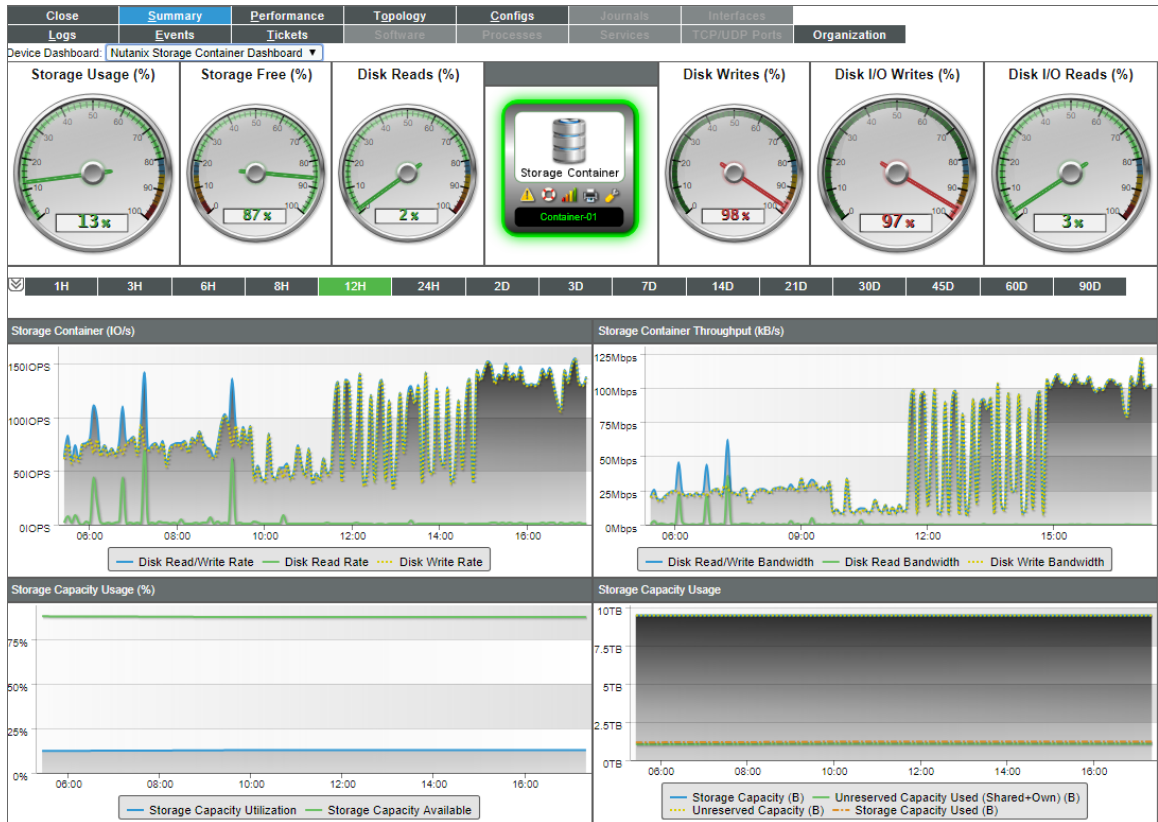
The "Nutanix Nodes/Hypervisor" device dashboard displays the following information:



- A number of gauges that display the following:
  - CPU Usage
  - Memory Usage
  - Disk Writes
  - SSD Usage
  - DAS Usage
  - Storage Usage
- IOPS over a period of time
- Disk reads and writes over a period of time
- Cache lookups and deduplication counts over a period of time
- SSD disk capacity used and storage capacity used over a period of time

# Nutanix Storage Container Dashboard

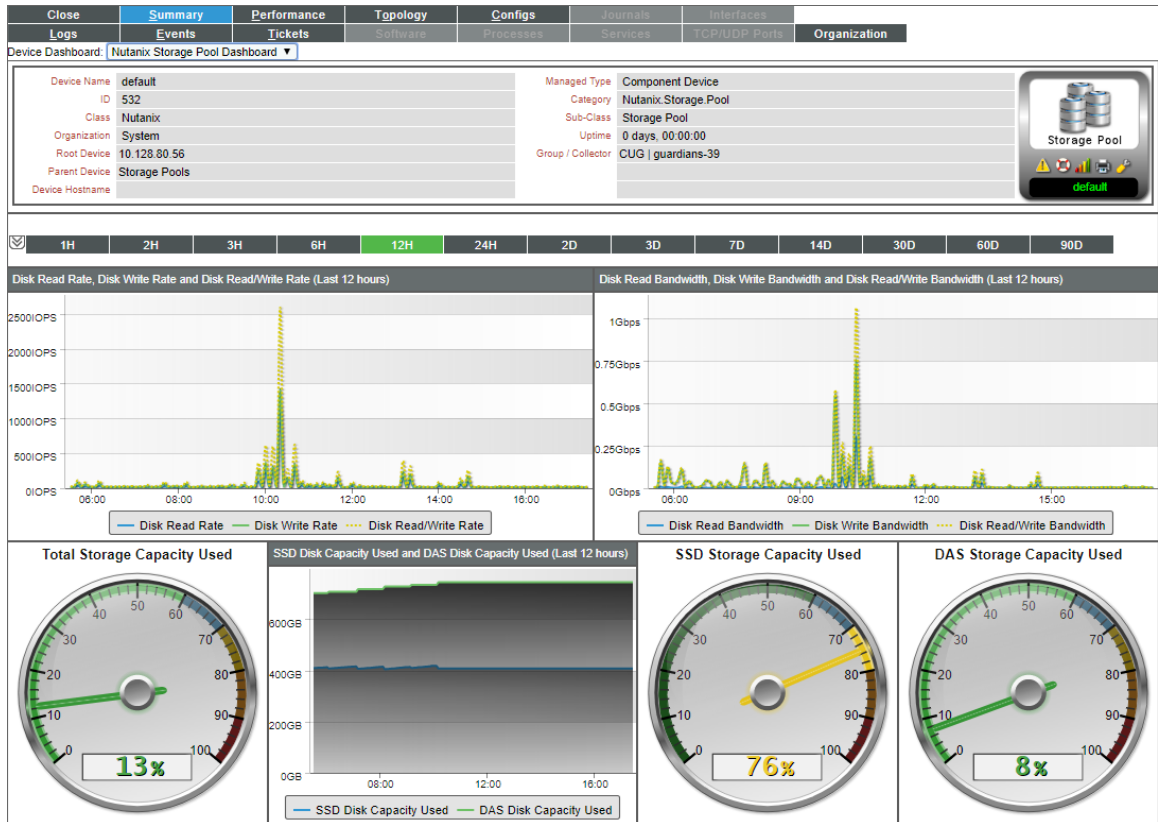
The "Nutanix Storage Container" device dashboard displays the following information:



- A number of gauges that display the following:
  - Storage Usage and Storage Free
  - Disk Reads and Disk Writes
  - Disk I/O Writes and Disk I/O Reads
- Storage container IO/s over a period of time
- Storage container throughput over a period of time
- Storage capacity usage over a period of time
- Storage capacity and unreserved capacity over time

# Nutanix Storage Pool Dashboard

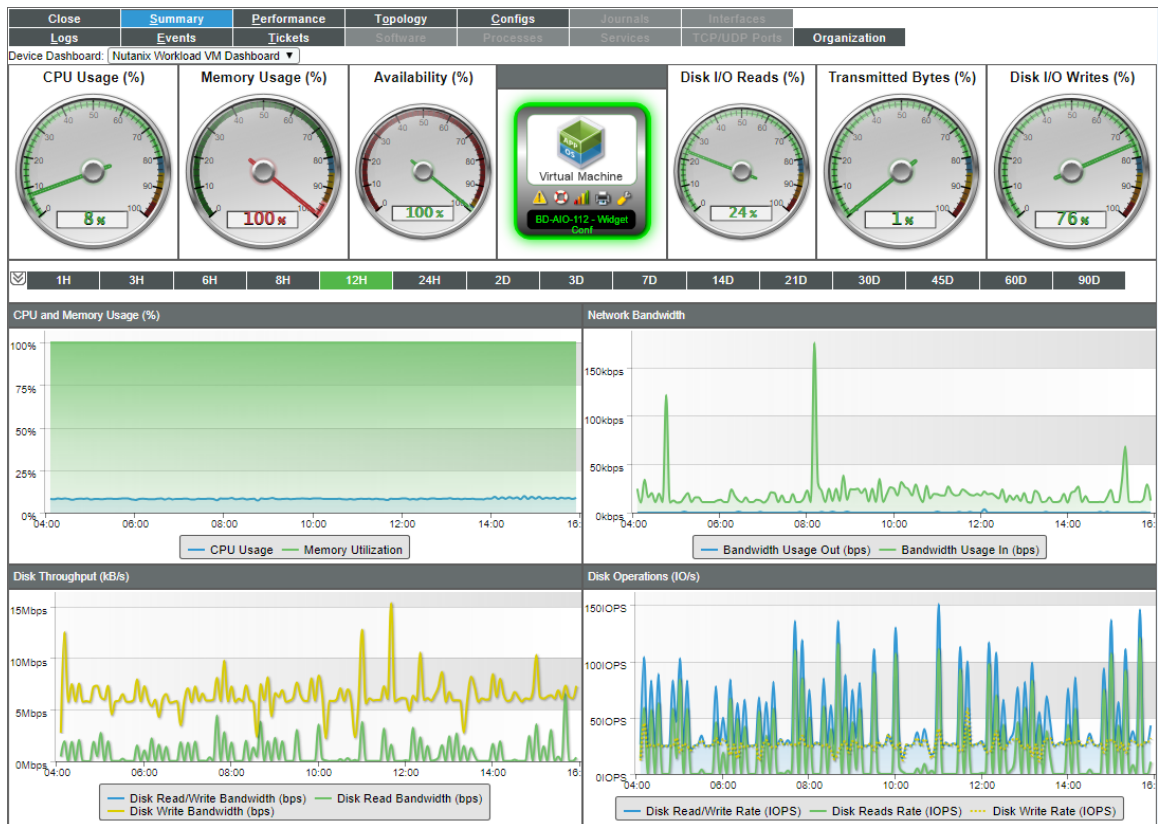
The "Nutanix Storage Pool" device dashboard displays the following information:



- A number of gauges that display the following:
  - Total Storage Capacity Used
  - SSD Capacity Used
  - DAS Storage Capacity Used
- Disk read rate and write rate over a period of time
- Disk read and write bandwidth over a period of time
- SSD disk capacity used over a period of time
- Storage capacity and unreserved capacity over time

# Nutanix Workload VM Dashboard

The "Nutanix Workload VM" device dashboard displays the following information:



- A number of gauges that display the following:
  - CPU Usage, Memory Usage, and Availability
  - Disk I/O Reads and Disk I/O Writes
  - Transmitted Bytes
- CPU and memory usage over a period of time
- Network bandwidth over a period of time
- Disk throughput over a period of time
- Disk operations over a period of time

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